

USSR

MNDZHOYAN, A. L., et al., Biologicheskii Zhurnal Armenii, Vol 24, No 3,  
Mar 71, pp 3-10

of the two organs studied consisted of reversion of growth, while its effect  
on tumor tissue was one of suppression of further growth.

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USSR

UDC: [621.3.013+621.313]536.483.001

DEMIRCHYAN, K. S., SOLNYSHKIN, N. I., Leningrad

"A Finite-Difference Method of Studying Magnetic Fields of Cryoelectric Machines in Unbounded Regions"

Moscow, Izv. AN SSSR: Energetika i Transport, No 4, Jul/Aug 72, pp 97-100

Abstract: A procedure is proposed for refining boundary conditions in the case of limiting the computational region when using the finite difference method. The procedure is based on the method of reducing a magnetic eddy field to the problem of calculating the field from a system of magnetic charges. A procedure is given for calculating the magnetic field of a cryoelectric generator by the finite-difference method with correction of the scalar magnetic potential on the boundary of the computational region. The finite-difference method of solving magnetic field equations in unbounded regions can be used with elimination of the influence of limitation of the region; for this purpose, it is sufficient to successively improve the accuracy of the constant magnetic field distribution in the iteration process, and to use the more accurate values to refine the value of the magnetic potential on the boundary of the region. Solution of the three-dimensional problem gives a two-dimensional representation of the magnetic field in the form of a set of space harmonics.

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1/2 034 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--ON THE DEFORMATION PROPERTIES OF A QUASIDILATANT DISPERSE SYSTEM AT  
LOW SHEAR STRESSES -U-  
AUTHOR--(05)-STALNOV, A.K., KRASHENINNIKOV, A.I., DEMISHEV, V.N., PETROV,  
F.A., STUPEN, L.V.  
COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 308-309

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL SUSPENSION, COPOLYMER, ACRYLONITRILE, ACRYLATE, SHEAR  
STRESS, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1972/1548

STEP NO--UR/0069/70/032/002/0308/0309

CIRC ACCESSION NO--AP0112542

UNCLASSIFIED

2/2 034  
CIRC ACCESSION NO--AP0112542

UNCLASSIFIED

PROCESSING DATE--02JCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEFORMATION OF SUSPENSIONS OF A COPOLYMER OF ACRYLONITRILE WITH METHYLACRYLATE IN 2,NITROPROPANOL, 1 AT LOW SHEAR STRESSES INVOLVES THE FORMATION IN THE SYSTEM OF A STRUCTURE THE STRENGTH OF WHICH IS GREATER THAN THE SHEAR STRESS APPLIED. UNDER ISOTHERMAL CONDITIONS THE STRENGTH OF THE STRUCTURE FORMED DIMINISHES WITH TIME AFTER THE LOAD IS REMOVED.

UNCLASSIFIED

Materials

USSR

UDC 666.11.01:539.3

DEMINKINA, L. I., Doctor of Sciences, KISIN, B. I.

"Elastic Properties of Glass as a Function of Chemical Composition"

Leningrad, Optiko-mekhanicheskaya promyshlennost', No 7, 1972, pp 39-44

Abstract: A study was made of the elastic properties of glass as a function of its chemical composition. Published data and the data from independent studies of the elastic properties of glass are used to demonstrate that the Young's modulus and the modulus of rigidity are not additive quantities, but the quantity which is the inverse of the velocities  $c'$  and  $c''$  of propagation of the longitudinal and transverse ultraviolet waves, that is, the times  $\tau' = 1/c'$  and  $\tau'' = 1/c''$  are additive;  $c'$  and  $c''$  are related to the moduli of elasticity by the following equations:

$$E = c'^2 d / g \text{ kg/mm}^2 \text{ and } G = c''^2 d / g \text{ kg/mm}^2$$

where  $d$  is the density of the glass,  $g$  is the gravitational acceleration.

Diagrams are presented which relate the density  $d$  of optical glass of different groups of compositions to the times  $\tau'$  and  $\tau''$  required for the longitudinal and transverse waves to travel 1 km in the glass. The experimental points corresponding to glass of the same composition lie on straight lines.

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DEMKINA, L. I., Optiko-mekhanicheskaya promyshlennost', No 7, 1972, pp 39-44

A table is presented containing the values of  $\tau'$ ,  $\tau''$ ,  $d$  and  $E$  of the investigated glass, and a figure shows the increment  $\Delta\tau'$  and  $\Delta\tau''$  of the initial glass on introduction of 10 mole % of each of the oxides. The data indicate that  $Sb_{10}O_3$ ,  $PbO$  and  $K_2O$  invariably increase the values of  $\tau$ , and  $SiO_2$ ,  $B_2O_3$ ,  $Al_2O_3$  and  $CaO$  invariably lower these values.  $ZnO$  and  $Na_2O$  decreased the value of  $\tau$  of flint glass and increased  $\tau$  of crown glass. The constants  $\tau'_0$  and  $\tau''_0$  were found for the additiveness formula for 11 oxides in silicate glass with expression of their composition in volumetric percentages used to calculate the travel time of longitudinal and transverse ultraviolet waves in acid silicate glass; the values of these constants were higher for  $Sb_2O_3$ ,  $PbO$  and  $K_2O$  than for the majority of silicate glass, and for  $SiO_2$ ,  $CaO$ ,  $B_2O_3$  and  $Al_2O_3$  lower. The Young's modulus, the modulus of shear and the Poisson coefficients were calculated. By the Young's modulus, the oxides can be arranged in the following descending series:  $(BO_4) \rightarrow CaO \rightarrow ZnO \rightarrow (AlO_4) \rightarrow BaO \rightarrow SiO_2 \rightarrow Na_2O \rightarrow Sb_2O_3 \rightarrow PbO \rightarrow K_2O$ .

2/2

1/2 024 UNCLASSIFIED  
TITLE--CONTACTING OF ROUGH SURFACES -U-

PROCESSING DATE--30OCT70

AUTHOR--DEMGIN, N.B.

COUNTRY OF INFO--USSR

SOURCE--KONTAKTIROVANIYE SHEROKHOVATYKH POVERKHNOSTEY MOSCOW, NAUKA, 1970,  
226 PP  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SURFACE PROPERTY, FRICTION COEFFICIENT, MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1440

STEP NO--UR/0000/70/000/000/0001/0226

CIRC ACCESSION NO--AM0121897

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AM0121897

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION 5. CHAPTER 1  
CONTEMPORARY CONCEPTS ON THE CONTACT OF ROUGH SURFACES 7. 2 PHYSICO  
MECHANICAL PROPERTIES OF A SURFACE AND CHARACTERISTICS OF ITS GEOMETRY  
35. 3 CONTACTING OF ROUGH SURFACES 60. 4 CONTACTING OF WAVY  
SURFACES 110. 5 THE EFFECT OF FRICTION FORCES ON FORMATION OF THE  
CONTACT 129. 6 EXPERIMENTAL INVESTIGATIONS OF THE CONTACT OF ROUGH  
SURFACES 144. 7 CONTACT OF DISPERSE MATERIALS WITH A HARD SURFACE  
178. 8 METHODS FOR CALCULATION OF CERTAIN CONTACT CHARACTERISTICS  
195. BIBLIOGRAPHY 213. THE BOOK DEALS WITH RESULTS OF THEORETICAL  
AND EXPERIMENTAL INVESTIGATIONS OF THE CONTACT OF SOLIDS TAKING INTO  
ACCOUNT MICROGEOMETRY OF THEIR SURFACES. THE BOOK WILL BE OF INTEREST  
TO SCIENTISTS, ENGINEERS AND TECHNICIANS.

UNCLASSIFIED



Acc. Nr: **AF0043697**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 3, pp 944-951NEGATIVE ION DECOMPOSITION  
IN THE SHORT RANGE POTENTIAL APPROXIMATIONDemkov, Yu. N.; Drukarev, G. F.; Kuchinskiy, V. V.

The cross section for electron detachment in collisions between negative ions  $A^-$  and atoms  $A$  are considered by the short range potential method (Firsov, Smirnov [1]). The adiabatic approximation is employed for quasi-stationary states; nonzero probability for survival of the  $A_2^-$  systems is taken into account and correspondingly allowance is made for the energy dependence of the cross section. The energy distribution of the emitted electrons is calculated in the same approximation. The case of different atoms and ions ( $A^- + B$ ) can be reduced to the case ( $A^- + A$ ) by renormalizing the parameters of the problem. The results are illustrated by the process  $H^- + H \rightarrow H + e$  and are compared with the experiments and with other calculations.

11  
REEL/FRAME  
19770101

21

Acc. Nr.: AP0029821

Ref. Code: UR 0475

5

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 102-105

ON THE THERAPEUTIC EFFICIENCY OF ELEUTHEROCOCCUS  
Lyubomudrov, V.Ye.; Basamygina, L.Ya.; Bikezina, V.G.;  
Mukhina, M.S.; Mikhaylova, T.I.; Osadchuk, V.S.; (Donetsk)  
Shidlovskiy, Ye.F.; Bondarenko, G.A.; Demkovich, O.A.

Eleutherococcus improves abnormal pulmonary ventilation, favours normalization of the arterial pressure, positively influences cardiac rhythm and His bundle conduction. It proved rather efficient in the treatment of patients with initial stages of vibration disease. It is promising in the treatment of chronic lead intoxication. The preparation favours more rapid acclimatization of pneumoconiosis involved miners.

It is concluded that eleutherococcus may be recommended for the complex treatment of patients with some professional diseases and more rapid acclimatization of patients to sanatorium conditions.

mk

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REEL/FRAME

19681507

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--BIOLOGY OF THE NEMATODE MECISTOCIRRUS DIGITATUS, LINSTOW, 1906, THE  
PARASITE OF THE ABOMASUM OF CATTLE -U-  
AUTHOR-(03)-DEMISHIN, N.I., PIGOLKIN, A.U., TEPLOV, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--PARAZITOLOGIYA 4(1): 48-52. ILLUS. 1970  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--NEMATODA, BIOLOGIC REPRODUCTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/0414 STEP NO--UR/9057/70/004/001/0048/0052  
CIRC ACCESSION NO--AP0134182  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FREE LIVING STAGES WERE STUDIED. LARVAE ARE FORMED IN EGGS AT A TEMPERATURE OF 18-25DEGREES DURING THE FIRST 2-3 DAYS. AT THE END OF THE 3RD OR AT THE BEGINNING OF THE 4TH DAY LARVAE LEAVE EGG'S MEMBRANE AND ON THE 5TH DAY THEY MOLT. IN 11 OR 12 DAYS THEY MOLT FOR THE 2ND TIME AND BECOME INVASIONAL. DESCRIPTIONS OF THE 1ST-IIIIRD STAGE LARVAE ARE GIVEN.

UNCLASSIFIED

USSR

ZEDGINIDZE, I. G. and DEMURISHVILI, Z. N.

"Change in Levels of Factors and Linear Drift in Factor Plans and Plans in a Simplex"

Tr. Problem. Lav. Avtomatiki i Vychisl. Tekhn. Gruz. Politekhn. In-t [Works of the Problems Laboratory of Automation and Computer Technology, Georgian Polytechnical Institute], 1972, No 3, pp 153-177 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V179)

Translation: The following model is studied:

$$y = f(x_1, \dots, x_n) + \phi(t) + \epsilon,$$

where  $y$  is the observation at point  $x = (x_1, \dots, x_n)$ ,  $f(x_1, \dots, x_n)$  is a polynomial of fixed order with unknown (to be estimated) coefficients,  $\phi(t)$  is the linear drift based on the observations and  $\epsilon$  is the measurement error. The area of measurements, it is assumed, is a lattice either on a hypercube or on a simplex. The problem of unbiased estimation of the unknown parameters by means of known experimental plans (factor plans and plans on a simplex) is studied. The order of conduct of the experiments is selected so that the number of changes in values of certain variables from  $x_1, \dots, x_n$  during the process of conduct of all experiments is not great.

V. Brodskiy

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USSR

UDC 616-008.922.1.04-02:615.916:546.267-07:616.45+  
616.839/-008

KHITROV, N. K., DEMUROV, YE. A., and ABINDER, A. A., Department of Pathological Physiology and Department of Hospital Therapy, First Moscow Medical Institute ineni I. II. Sechernov

"Role of the Sympathoadrenal System in Altering Cholinergic Activity During Acute Tissue Hypoxia Induced by Cyanides"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, pp 86-87

Abstract: In one series of experiments, rabbits were given potassium cyanide intravenously and 40 to 60 min later, a larger dose of the compound. In another series, the animals were given chlorpromazine intravenously 15 to 20 min before the first dose of potassium cyanide in order to block the adreno-reactive structures. Administration of 1.5 mg/kg or KCN to the animals caused motor excitation, elevation of arterial pressure, and development of bradycardia. Blood cholinesterase activity decreased while blood acetylcholine increased. Injection of 3.2 mg/kg of KCN after the animals' respiration, EKG, and arterial pressure returned to normal lowered arterial pressure and slowed the pulse. Blood cholinesterase activity remained low, but the acetylcholine 1/2

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KHITROV, N. K., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 2, pp 86-87

concentration increased. In the second series of experiments, administration of 5 mg/kg of chlorpromazine increased blood acetylcholine slightly but had no effect on cholinesterase activity. Intravenous injection of 1.5 mg of KCN 15 minutes later altered blood cholinesterase and acetylcholine insignificantly. The larger dose (3.2 mg/kg) had the same effects of these indexes as in intact animals.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--CHANGES IN THE SYMPATHETIC AND PARASYMPATHETIC REACTIONS IN  
NEUROLEPTOANALGESIA WITH MYORELAXANTS AND ARTIFICIAL VENTILATION OF THE  
AUTHOR--(03)--PADALKO, V.V., KHITROV, N.K., DEMUROV, YE.A.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP  
72-76

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE RELAXANT, ARTIFICIAL RESPIRATION, HYPOTENSION, DRUG  
ANALGESIC EFFECT, CURARE DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0639

STEP NO--UR/0481/70/000/002/0072/0076

CIRC ACCESSION NO--AP0108850

UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108850

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER NEUROLEPTOANALGESIA WITH MYORELAXANTS AND ARTIFICIAL VENTILATION OF THE LUNGS A COMPLEX REARRANGEMENT OF FUNCTIONING OF THE ADREN AND CHOLINERGIC APPARATUS OF CARDIOVASCULAR CONTROL TAKES PLACE. NLA PRODUCES HYPOTENSION AND TACHYCARDIA, DECREASES SENSITIVITY OF ALPHA AND BETA ADRENORECEPTORS AND INCREASES ACTIVITY OF M CHILINDREACTIVE STRUCTURES. MYORELAXANTS OF BOTH TYPES WITH NLA DO NOT AFFECT THE BLOOD PRESSURE, BUT DECREASE TACHYCARDIA. LYSTENON UNDER ABOVE CONDITIONS INCREASES SENSITIVITY OF BETA ADRENORECEPTORS, WHILE TUBOCURARIN ACTS IN A SIMILAR MANNER OF ALPHA ADRENORECEPTORS. THE AUTHORS SUGGEST THAT THE ABOVE EFFECTS OF TALAMONAL AND RELAXANTS ARE DUE TO CHANGES IN THE MEDIATOR METABOLISM. FACILITY: KAFEDRA PATOLOGICHESKOY FIZIOLOGII I MOSKOVSKOGO MEDITSINSK. INSTITUTA IM. I. M. SECHENOVA.

UNCLASSIFIED

UDC: 537.567+537.569

USSR

DEMUTSKIY, V. P., POLOVIN, R. V., Khar'kov State University imeni A. M. Gor'kiy, Physicotechnical Institute, Academy of Sciences of the UkrSSR, Khar'kov

"Concerning Ionization-Recombination Oscillations"

Kiev, Ukrainskiy Fizicheskij Zhurnal, Vol 16, No 9, Sep 71, pp 1554-1556

Abstract: The authors discuss small ionization-recombination oscillations of a gas discharge close to the equilibrium state. They consider traps into which fast molecular ions are injected with dissociation into atomic ions captured by the trap and into which neutral particles are injected. It is shown that the injection mode is always stable for fast molecular ions as well as for fast neutral particles. The authors thank A. I. Akhiezer for constructive criticism. Bibliography of ten titles.

1/1

USSR

UDC 533.9

DEMUTSKIY, V. P., and POLOVIN, R. V., Physico-Technical Institute, Academy of Sciences, Ukrainian SSR, Kharkov

"Stability of a Relativistic Beam in Lattice-Type Electric and Magnetic Fields"

Kiev, Ukrainskiy Fizicheskii Zhurnal, Vol 16, No 8, Aug 71, pp 1379-1380

Abstract: The condition of instability of an electron beam in a given medium is that the velocity of the beam must exceed the velocity of the electromagnetic waves in the medium. The authors examine a modification of this in the relativistic case. They define the situation in which the motion of the electrons along the  $z$ -axis is stationary and under what conditions such a state of the beam is unstable. The problem is simplified by assuming that the charge and flow of the beam are compensated by the charge and flow of sufficiently heavy ions that do not participate in the high-frequency oscillations. To avoid the complication of studying the boundary conditions, the authors assume the medium and the beam to be infinite. The authors base their mathematics on the Maxwell equations and the equation of motion of an electron; they then linearize the equation obtained and, assuming the solution to have the form of a plane monochromatic wave, they obtain a dispersion  
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DEMUTSKIY, V. P., and POLOVIN, R. V., Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 8, Aug 71, pp 1379-1380

equation connecting  $\omega$  and  $k$ . Ultimately the authors determine that allowance of the relativistic effects has no influence on the instability of the conditions proposed. However, when the energy of the electrons increases, the increment in growth of oscillations and wavelength representing the maximal increment are decreased. The article contains 1 bibliographic entry.

2/2

USSR

POLOVIN, R. V., DEMUTSKIY, V. P. (Physics-Engineering Institute, Ukrainian Academy of Sciences, Khar'kov; Khar'kov State University)

"Nonlinear Excitation of Ion-Sound Waves"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, August 1970, pp 1272-1276

Abstract: The article deals with a non-linear resonance excitation of ion-sound waves by an external electric field, which is supposed to be small. The problem is solved by the Bogolyubov method, which is modified for the case of a system of partial differential equations instead of traditional reduction to ordinary differential equations by means of the Fourier series expansion.

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USSR

DEM'YALOV, V. F. and MALOZEMOV, V. N.

"The Solution of Nonlinear Minimax Problems"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973,  
p 149 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973,  
Abstract No 10V439)

Translation: A necessary condition of stability of the value of a  
parameter in the solution of the problem of determination of the mini-  
max of a continually differentiable function is formulated. The exist-  
ence of an iterative method for determination of stable values of the  
parameter, which can be used to determine the situation of equilibrium  
in certain games problems, is reported.

1/1

USSR

UDC 537.311.3:546.26'28

BARINOV, YU.B., BULGAKOV, YU.V., DEM'YANCHIK, D.V., IGLITSYN, M.I., IL'IN, M.A., KASAGANOVA, M.G., PAVLOV, N.M., SOLCHATIN, V.N.

"Effect Of Irradiation On The Physical Properties Of Hexagonal Silicon Carbide"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals-Collection Of Works), Vol. 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 105-110 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B36)

Translation: The effect was studied of irradiation by  $\alpha$  particles and neutrons on the spectra of electronic paramagnetic resonance and the optical spectra of n-type  $\alpha$ -SiC doped with nitrogen and p-type doped with boron. In the spectra of the electronic paramagnetic resonance of n-type specimens, the irradiation caused a decrease of the old and the appearance of a number of new lines. Irradiation of p-type crystals by  $\alpha$ -particles lead to an increase of the optical absorption in the 2--25 micrometer region and irradiation by neutrons caused an increase of absorption at  $\lambda < 0.55$  micrometer and a decrease of absorption in the  $0.55 < \lambda < 6$  micrometer region. 3 ill. 1.V.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--DETERMINATION OF TRACE IMPURITIES OF HEAVY METALS ARISING DURING  
THE ELECTROLYSIS OF SODIUM CHLORIDE WITH A MERCURY CATHODE -U-  
AUTHOR-(04)-DEMYANCHUK, A.S., MIKHAYLOV, V.S., VOLNITSKIY, G.P., SIRENKO,  
I.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. SPEKTRSOB, 1970, 12(1) 129-30  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTROLYSIS, SODIUM CHLORIDE, AMALGAM, METAL ELECTRODE,  
CATHODE, MERCURY, CHEMICAL PURITY, ALUMINUM, VANADIUM, IRON, CHROMIUM,  
LEAD, MANGANESE, COPPER/(U)ISP28 SPECTROGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1983/0928

STEP NO--UR/0368/70/012/001/0129/0130

CIRC ACCESSION NO--AP0053852

UNCLASSIFIED



2/2 027

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053852

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRACES OF AL, V, FE, CR, PB, MN, CU, AND NI (10 PRIME NEGATIVE3 MINUS 10 PRIME NEGATIVE7 PERCENT) IN SOLID AND LIQUID AMALGAMS, NACH SOLN., AND IN GRAPHITE ARE DETD. BY SPECTROGRAPHY. AN ISP-28 SPECTROGRAPH, WITH A 17-18-A A.C. ARC AND 1 MIN EXPOSURE WAS USED. THE ANAL. LINES ARE AL I 3082.2, V I 3185.4, FE II 2599.4, CR II 2835.6, PB I 2833.1, MN I 2801.1, CU I 3274.0, AND NI I 3050.0 ANGSTROM. THIS METHOD WAS USED FOR DETG. THE SOURCES OF THESE IMPURITIES IN THE INDUSTRIAL ELECTROLYSIS OF NACL WITH A HG CATHODE. THE RELATIVE STD. DEVIATION WAS LESS THAN 20PERCENT.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFREMOVSK NATURAL GAS DEPOSIT AND POSSIBLE INCREASE OF ITS  
RESOURCES -U-  
AUTHOR--DEMYANCHUK, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--GEOL. ZH. (URK. ED.) 1970, 30(1), 121-3  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS  
  
TOPIC TAGS--NATURAL GAS, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, CHEMICAL  
COMPOSITION, METHANE, ETHANE, PROPANE, BUTANE, PENTANE, CARBON DIOXIDE,  
NITROGEN, EXPLORATORY DRILLING  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1562 STEP NO--UR/0008/70/030/001/0121/0123  
CIRC ACCESSION NO--AP0118545  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118545

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE DEPOSIT WAS DISCOVERED IN 1965 AND PUT INTO OPERATION IN JUNE 1967. SINCE THEN, SIMILAR TO 1 BILLION M PRIME3 OF GAS AND 15 ,600 TONS OF CONDENSATE WERE PRODUCED UP TO MARCH 1968. THE TERRIGENOUS ROCKS OF THE NIKHITOVSK, KARTAMISK (LOWER PERMIAN), ARAUKARIT, AND AVILOVSK SERIES (UPPER CARBONIFEROUS) ARE THE MAIN PRODUCING FROMATIONS. GAS FROM THE DEPOSIT CONTAINS CH SUB4 90.6, C SUB2 H SUB6 3.82, C SUB3 H SUB8, 1.62, C SUB4 H SUB10 0.63, C SUB5 H SUB12 AND HIGHER HYDROCARBONS 0.19, CO SUB2 0.62, AND N PLUS RARE GASES 2.50PERCENT. THE CONDENSATE CONTENT IN THE GAS IS 26.5 G-M PRIME3 AND ITS D. IS 0.771 G-CM PRIME3. THE TOTAL RESOURCES IN THE EFREMOVSK DEPOSIT ARE 98.6 BILLION M PRIME3: 79.0 IN THE KARATAMISK, 40.0 IN ARAUKARIT AND AVILOVSK, AND 1.5 BILLION M PRIME3 IN THE NIKHITOVSK SERIES. THE EXPLORATION DRILLING IN PERICLINAL AND LIMB PARTS OF THE STRUCTURE WITH OPENING OF THE LOWER PERMIAN AND UPPER CARBONIFEROUS FORMATIONS (SMALLER THAN OR EQUAL TO 4-4.5 KM DEEP) AND PROSPECTING FOR NEW PRODUCTIVE LAYERS IN THE UPPER CARBONIFEROUS, MIDDLE CARBONIFEROUS, AND NAMURIAN FORMATIONS ARE RECOMMENDED TO INCREASE RESOURCES OF THE DEPOSIT.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--OPTIMAL REDUNDANCY WITH COST AS CRITERION -U-

AUTHOR--(02)-BARVINSKIY, L.L., DEMYANCHUK, V.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ RADIOELEKTRONIKA (USSR), VOL. 13, NO. 1, P. 97-9 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, NAVIGATION

TOPIC TAGS--COST ESTIMATE, COMMUNICATION CHANNEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1805

STEP NO--UR/0452/70/013/001/0097/0099

CIRC ACCESSION NO--AP0133710

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MULTICHANNEL SYSTEM, CONSISTING OF M MAIN AND N REDUNDANT CHANNELS IS ANALYSED WITH A VIEW TO DETERMINING THE OPTIMUM NUMBER N SUBO OF REDUNDANT CHANNELS, TAKING THE LEAST OVERALL COST OF THE SYSTEM AS CRITERION. AN EXPRESSION IS DERIVED FOR N SUBO. TABULATED RESULTS SHOW THAT THE LOSS PER HOUR VERSUS IDLE TIME OF THE SYSTEM DECREASES RAPIDLY AS THE NUMBER OF REDUNDANT CHANNELS INCREASES; AT THE SAME TIME THE RUNNING AND SERVICING COSTS RISE LINEARLY.

UNCLASSIFIED

Reliability

USSR

UDC 621.396.6.019.3

BARVINSKIY, L. L., DEM'YANCHUK, V. S., MEDVEDEV, K. I.

"Availability of Certain Repairable and Maintainable Redundant Systems"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collected Scientific Works of Kiev Institute of Civil Aviation Engineering), 1970, vyp. 3, pp 25-29  
(from RZh-Radiotekhnika, No 5, May 72, Abstract No 5V292)

Translation: Expressions were obtained for evaluating the idle time factor of a complex comprising redundant subsystems and subjected to repair and preventive maintenance. It is proposed that all modules of the system are equally reliable and that their repair time is distributed by an exponential law. The repair time for a failed module and the switching time to a reserve unit in a state of good repair are distributed by a power law. The time to ready the redundant unit for operation is taken into account. There is 1 illustration and a 1-entry bibliography.

1/1

USSR

UDC: 621.373:621.396.662

GORSHENKOV, Yu. N., DEM'YANCHENKO, A. G.

"On a Method of Designing Oscillators With Precision Frequency Control"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 3 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 3), Novosibirsk, 1970, pp 85-86 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A419)

Translation: Frequency control within extremely narrow limits (of the order of  $10^{-7}$  of the main frequency) in an oscillator is practically impossible by conventional methods. It is proposed that two oscillators mutually synchronized on frequency multiples be used for this purpose. One of the oscillators operates in the mode of frequency multiplication of the other, and conversely the other oscillator operates in the mode of division of the frequency of the first. The operation of such a system is explained, and it is pointed out that it can be made for any frequency band by using any harmonic oscillators. Bibliography of two titles. E. L.

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1/2 016 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--RADIAL MOTION OF ELECTRONS AND FOCUSING THE BEAM IN A 300 MEV  
LINEAR ACCELERATOR WITH ALLOWANCE FOR THE INFLUENCE OF ELECTRIC FIELD  
AUTHOR--(03)--GRISHAYEV, I.A., DEMYANENKO, G.K., RUBTSOV, K.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, JAN. 1970, P. 149-154  
DATE PUBLISHED--70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRON BEAM, ELECTRON MOTION, LINEAR ACCELERATOR, PARTICLE  
TRAJECTORY, FOCUSING ACCELERATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1978/1507 STEP NO--UR/0057/70/040/000/0149/0154  
CIRC ACCESSION NO--AP0046346  
UNCLASSIFIED



2/2 016

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0046346

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXAMINATION OF THE RADIAL MOTION OF ELECTRONS IN A LINEAR ACCELERATOR, WITH AN ALLOWANCE FOR PERTURBING FORCES DUE TO THE ELECTRIC FIELD ASYMMETRY IN THE MATCHING ACCELERATING SECTIONS. IT IS SHOWN THAT THE MAGNITUDE OF THIS FORCE DEPENDS ON THE AMPLITUDE AND PHASE OF THE ACCELERATING WAVE. THE PARTICLE TRAJECTORY IS CALCULATED AND OPTIMUM PARAMETERS FOR FOCUSING THE ELEMENTS ARE ESTABLISHED.

UNCLASSIFIED

Acc. Nr.: AP0046763

Ref. Code: UR0125

USSR

D

UDC 621.791.756:669.15-194

KAKHOVSKIY, N. I., FARTUSHEV, V. G., DEM'YANENKO, G. P., ZAKHAROV, L. S.,  
LIPODAYEV, V. N., KAKHOVSKIY, YU. N., BRUSENTOVA, V. N., KOTOV, V. V.

"Welding of Chrome-nickel-molybdenum Single-Phase Austenitic Steel"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 39-43  
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the effect of manganese and nitrogen on crack resistance of purely austenitic welds. Chrome-nickel-manganese-molybdenum wire with nitrogen EP690 and ANV-17 electrodes for welding OKh17N16M2T, 00Kh17N16M3B and 00OKh16N15M3 steels have been developed. These developments insure uniform strength, uniform corrosion resistance of the joints made of these steels and sufficiently high plasticity and viscosity of the weld metal. There are 4 tables, 1 illustration and a bibliography with 15 entries..

1/1

Reel/Frame  
19790067

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Miscellaneous

USSR

UDC: 511

DEM'YANENKO, V. A.

"Torsion Points of Elliptical Curves"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Matematicheskaya, Vol. 34, No. 4, 1970, pp 757-774

Abstract: This paper proves the following theorem: If  $m \equiv 0 \pmod{p^2}$ , where  $p > 3$ , there exists a constant  $C(p, \mathcal{K})$ , a function of only  $p$  and  $\mathcal{K}$ , such that  $m < C$ . Here,  $\mathcal{K}$  is a field of algebraic numbers of degree  $n$  relative to a field of rational numbers. To arrive at this proof, the author involves other factors such as  $\mathcal{T}$ , a curve  $y^2 = x^4 + ax^2 + b$  over the latter field;  $\mathcal{P}$ , an arbitrary point on  $\mathcal{T}$ ;  $\mathcal{O}_m$ , a rational point on curve  $\mathcal{T}$  of finite order  $m$ ; and  $\mathcal{Q}$ , a zero point on this curve, infinitely remote and corresponding to an infinitely remote point of the Weierstrass curve  $z^2 = t^3 - 27(a^2 + 12b)t + 54a(a^2 - 36b)$ . In concluding, the author expresses his gratitude to I. R. Shafarevich for checking the article and for his valuable comments.

1/1

USSR

DEM'YANENKO, V. P.; TSYASHCHENKO, Yu. P.; VERIAN, E. M. (Kiev State University)

"Infrared Absorption of the Complex  $\text{CrO}_4^{2-} \cdot \text{M}^{2+}$  in KCl and KBr Crystals"

Leningrad, Solid State Physics; November, 1970; pp 3124-32

ABSTRACT: The infrared absorption spectra of KCl and KBr crystals alloyed with  $\text{CrO}_4^{2-}$  ions and cations  $\text{M}^{2+} = \text{Mg}^{2+}, \text{Sr}^{2+}, \text{Ba}^{2+}, \text{Pb}^{2+}$  were studied in the 100-300°K temperature interval. These impurities form complexes of symmetry  $\text{C}_{2v}$ , causing disintegration of the triply degenerate valence oscillation  $\nu_2$  and the appearance of completely symmetrical oscillation  $\nu_1$  of the  $\text{CrO}_4^{2-}$  ion.

The frequencies in the infrared spectra of these complexes are given, and a comparison of them is made depending on the form of the  $\text{M}^{2+}$  cation.

From the data on the integral absorption of the complexes of a triplet oscillation  $\nu_3$  are evaluated the magnitudes of the charges localized on atoms of oxygen and chromium from a  $\text{CrO}_4^{2-}$  ion excited by an  $\text{M}^{2+}$  cation.

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USSR

DEM'YANENKO, V. S. and DERUNOV, YE. K., Institute of Theoretical and Applied Physics, Siberian Department, Academy of Sciences, USSR

"Supersonic Streamline Flow About a Right Dihedron"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 8, Jun 71, pp 22-25

Abstract: The paper presents results of experimental research, in a hypersonic wind tunnel, on the flow in a right dihedron formed by straight plates with sharp edges. The experiments were conducted for the following values: Mach number = 2.03, Reynolds number =  $4.9 \times 10^6$ , and Mach number = 4.01, Reynolds number =  $9.6 \times 10^5$  in the range of angles of attack and slippage of the model from  $-12^\circ$  to  $+12^\circ$ , and consisted of measurement of the pressure distribution at the edges of the dihedron, and in visualization of the flow by means of an oilsoot mixture. The experiments showed that the flow pattern near the vortex of the dihedron is very complex and is characterized by strong churning; at some distance from the front edges the flow is almost conical, in any case for moderate angles of attack and slippage. It was found that for calculating the value of the average pressure in the region of interaction of a right dihedron within the range of the combined angle of attack ( $\alpha$ )

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USSR

DEM'YANENKO, V. S., and DERUNOV, YE. K., Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 8, Jun 71, pp 22-25

and angle of slippage ( $\beta$ ), where  $\alpha + \beta = 16$  to  $+21^\circ$ , when  $\alpha + \beta > 0$  the desired pressure is equal to the pressure behind the oblique shock wave which deflects the stream by the angle  $\alpha + \beta$ , and when  $\alpha + \beta < 0$ , the desired pressure is equal to the pressure behind the fan of rarefaction waves which deflect the stream by an angle of  $\alpha + \beta$ . Three figures, 1 reference in the form of a footnote.

2/2

USSR

UDC 662.998

DZHIGIRIS, D. D., Candidate of Technical Sciences, DEM'YANENKO, YU. N.,  
Engineer, MAKHOVA, M. F., Candidate of Technical Sciences, GUDZINSKIY, O. S.,  
Engineer and MAZANOVA, N. I., Engineer

"Thermally Insulating Plates Based on Superfine Basalt Fibers"

Moscow, Stroitel'nyye Materialy, No 12, Dec 73, pp 19

Abstract: The basalt superfine fibers (BSFF) have a diameter less than 2 microns. These fibers are the base for the preparation of a soft, very effective insulation material which may be used in the temperature range  $-200$  to  $+700^{\circ}$  C. The BSFF have a high resistance to vibrations, acid, and steam. Values for specific volume, bonding hygroscopic tendency and rigidity are given as a function of plate thickness from 2 to 9.8 mm. The plates are prepared from a polyvinylacetate emulsion having a fiber concentration of 1.5 to 5 g/l of the BSFF. The plates were dried with a corresponding loss of weight of between 0.2-0.3%. These BSFF plates have the advantage of being composed of readily available materials and of having a short processing time -- 2-3 times less than that presently required for processing.

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Acc. Nr:

AP0048480

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

UR0070

105253z Magnetic properties of rare-earth stannates,  $R_2Sn_2O_7$ . Mitina, L. P.; Belyaev, L. M.; ~~Dan'yanets, L. N.~~; Dmitrieva, T. V.; Lyubutin, I. S. (Inst. Kristallogr., Moscow, USSR). *Kristallografiya* 1970, 15(1), 183-6 (Russ). The temp. dependence of the magnetic susceptibility ( $\chi$ ) was measured for compds. of the  $R_2Sn_2O_7$  type, where  $R = La, Pr, Nd, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb$ , and  $Y$  in magnetic fields of 7 and 10 kOe at 100 — 600°K by means of a balance with electromagnetic compensation. Curves are shown. The values of molar susceptibility at 293°K, Curie const., paramagnetic Curie temp., and effective magnetic moment calcd. from the values measured are tabulated. The deviations from linearity of the  $1/\chi(T)$  dependence were discussed. The effect of cryst. fields is mentioned as a possible cause of the deviation from the Curie law at lower temps. V. Burjan

REEL/FRAME  
19800188

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--HYDROTHERMAL SYNTHESIS OF SODIUM COBALT GERMANATE -U-  
AUTHOR--DEMYANETS, L.N.  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 394  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--COBALT COMPOUND, GERMANIUM COMPOUND, SODIUM COMPOUND, CHEMICAL  
SYNTHESIS, CRYSTAL LATTICE PARAMETER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1571 STEP NO--UR/0070/70/015/002/0394/0394  
CIRC ACCESSION NO--AP0125197  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE STUDY OF HYDROTHERMAL CRYSTN. IN THE SYSTEM NA SUB2 O-COO-GEO SUB2 H SUB2 O, A NEW NA-CO GERMANATE, NA SUB2 COGEO SUB4, WAS SYNTHESIZED. THE SYNTHESIS WAS CARRIED OUT IN AN AUTOCLAVE BY USING A 20-30PERCENT SOLN. OF NAOH IN H SUB2 O AND AN EQUIMOLAR MIXT. OF CACO SUB3(COO) AND GEO SUB2 AS THE LAYER. THE TEMP. OF THE DISSOLN. ZONE WAS 450-500DEGREES, THE TEMP. OF THE GROWTH ZONE WAS 425-75DEGREES, AND THE TEMP. DIFFERENTIAL, 25-30DEGREES. DEEP BLUE, LONG PRISMS OF NA SUB2 COGEO SUB4 WERE ANALYZED BY X RAY DIFFRACTION. THE LATTICE PARAMTERS, BELONGING TO THE PN SPACE GROUP, WERE A 7.2, B 5.65, C 5.33, AND BETA SIMILAR TO OR EQUALS TO 90DEGREES. BASED ON THESE DATA, NA SUB2 COGEO SUB4 HAS A D PHASE TYPE STRUCTURE: NA SUB2 ZNSIO SUB4, NA SUB2 ZNGEO SUB4, NA SUB2 MNSIO SUB4. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

1/2 049 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--INFLUENCE OF THE INITIAL PHASE OF SHOCK WAVE REFLECTION FROM A WALL  
ON THE STABILIZATION OF FLOW AND HEAT TRANSFER PROCESSES -U-  
AUTHOR-(02)-DEMYANKOV, YU.A., ELKIN, L.I.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA  
JAN.-FEB. 1970, P18-24  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE REFLECTION, FLOW STABILITY, HEAT TRANSFER, ENTROPY,  
EXTERNAL FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1787

STEP NO--UR/0421/70/000/000/0018/0024

CIRC ACCESSION NO--AP0112773

UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0112773

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF ONE DIMENSIONAL UNSTEADY FLOWS SHOWING THAT DUE TO THE CHANGES IN THE ENTROPY OF THE EXTERNAL FLOW, CAUSED BY THE INITIAL PHASE OF SHOCK REFLECTION FROM A HEAT CONDUCTING WALL, THE PARAMETERS OF THE INTERNAL FLOW WILL APPRECIABLY DIFFER AFTER ANY PERIOD OF TIME FROM THE PARAMETERS OF THE BASIC FLOW OBTAINED BY GOLDSWORTHY (1959). IN VIEW OF THIS, THE RELATIONS DESCRIBING THE STABILIZATION OF HEAT TRANSFER AND FLOW PROCESSES BEHIND THE REFLECTED SHOCK WILL ALSO DIFFER FROM GOLDSWORTHY'S RELATIONS.

UNCLASSIFIED

USSR

UDC 535.853

DEM'YANOV, A. A., SEMENOV, M. G.

"Procedure for Measuring the Dielectric Parameters of Strongly Absorbing Liquids on Millimeter Waves"

Moscow, Pribery i Tekhnika Eksperimenta, No 5, 1972, pp 143-144

Abstract: A study was made of the possibility of determining the dielectric parameters for the case where only the first peak and the first minimum are observed on shifting of the metal boundary. Matching the restriction from the air-dielectric interface permitted simplification of the method of determining the damping coefficient. The measurement error was 2-3%. The described procedure was used to measure the temperature dependence of the dielectric parameters of ethylene glycol, technical ethylene glycol and a mixture of ethylene glycol with water. The divergence of these measurements from those obtained by V. V. Levin [Zh. Struk. khimii, No 4, 766, 1970] is within the limits of the measurement error.

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USSR

UDC: 530.93.083.633.1

DEM'YANOV, A. A., Fryazino

"Automatic Recording Measuring Device for Low Moisture Content in Oil"

Novosibirsk, Avtometriya, No. 6, 1970, pp 107-109

Abstract: An automatic device using radio waves in the millimeter wavelength range for detecting traces of water in oil is described in this brief communication. It was devised by the author as the result of experiments he performed in measuring the dielectric parameters of dry and watered oil, and consists of a T-shaped waveguide system. The two transverse arms of the T are waveguides while the vertical member is a tube made of a dielectric such as teflon or polystyrene through which the controlled oil flows. A diagram of the unit is given together with the schematic of the entire system, of which the unit is a part, for the automatic detection of the water content in oil and petroleum products. Measurements made with the equipment have shown that with a wavelength of from 2 to 8 mm, a water content of 0.002 to 0.01% can be detected in oil.

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USSR

UDC 535.34

DEM'YANOV, A. A., MERIAKRI, V. V.

"Investigation of the Absorption Spectra of Petroleum and Its Fractions in the 3.5 to 8.0 mm Wavelength Range"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 13, No 4, Oct 70, pp 639-642

Abstract: Petroleum samples studied were from the Romashkinskiy field of the Zay-Karatay platform, containing 1.75% sulfur and sulfur compounds; from the Belorussian field (Rechitsa Region, well no 6), containing 6.76% solid paraffin inclusions; from the Belorussian field (Ostashkovich Region, well no 2), containing 32% pitch; and a mixture of Zhirnovskiy petroleums. Measurements were made in the wavelength range of 3.5 to 8.0 mm at 25°C. Curves are plotted for the attenuation factor  $\alpha$  as a function of wavelength for the various samples. As shown by the  $\alpha = f(\lambda)$  curves, for petroleum it is similar to its behavior in weak solutions of polar dielectric materials in nonpolar solvents. In general, attenuation increases in the short-wave region due partly to additional scattering from the paraffin lattice as well as

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USSR

DEM'YANOV, A. A., et al, Zhurnal Prikladnoy Spektroskopii, Vol 13, No 4, Oct 70, pp 639-642

from low boiling point fractions. The temperature dependence of  $\alpha$  for the sample with 30% pitch is unique, in that losses initially decrease, then at about 12 to 17°C change sign and begin to increase.

Spectral absorption as a function of temperature was also measured. This was done because the temperature of petroleum varies from 0 to 50°C during production and transportation. Variation of the losses with temperature in petroleum fractions indicates that losses rise linearly toward the shorter wavelengths at constant temperature and nonlinearly as temperature is increased, with the exception of the 105 to 160°C fractions, which is almost independent of temperature. The explanation for this is sought in the nature of the polarization of the fractions. Dipole theory permits only qualitative analyses to be made and related to variation in the viscosity of the test samples.

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USSR

DEM'YANOV, A. A., et al, Zhurnal Prikladnoy Spektroskopii, Vol 13, No 4, Oct 70, pp 639-642

The experimental data obtained fall to the right of the extremum of dielectric losses, which accounts for the increase in  $\alpha$  with temperature. Also, an instrument for measuring moisture on the basis of the losses must be corrected for temperature and petroleum composition.

The authors thank A. B. Logadkin for assistance and advice. Orig. art. has 3 figs., 2 tables, and 8 refs.

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DEM'YANOV, E.A.

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6-73

SESSION VIII

VII-1A. STATISTICAL STUDY OF THE NUCLEATION KINETICS OF TINS

[Article by E. A. Dem'yanov, Novosibirsk; Novosibirsk, III Symposium on Physical Chemistry, Novosibirsk, 1974, p. 100]

A procedure is proposed for the statistical study of the nucleation kinetics of tins which is used to study the phenomenon of twinning occurring when growing indium antimonide crystals from a melt.

It was found that the distribution function for the waiting time for the appearance of each subsequent twin is subject to the Medvedev-Kelbull law. According to the distribution functions found for different supercoolings, the twin nucleation rate was determined as a function of the supercooling which permitted calculation of the specific energy of the boundary of the twinning nucleus joined to the (111) face in the twinning position. The work of joining the two-dimensional nucleus of critical dimensions in the twinning position was defined as a function of the supercooling.

The results obtained were compared with the results of studying the growth kinetics of indium antimonide crystals from a melt. The possible mechanism of crystal growth from the melt and the possible mechanism of nucleation of twins were proposed and discussed.

1/2 016 UNCLASSIFIED PROCESSING DATE--0200T70  
TITLE--STATISTICAL STUDY OF THE KINETICS OF NUCLEATION IN MELTS. I.  
FORMATION RATE OF CRYSTALLIZATION CENTERS -U-  
AUTHOR--(03)-KIDYAROV, D.I., BOLKHOVITYANOV, YU.R., DEMYANOV, E.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 668-72  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NUCLEATION, CRYSTALLIZATION, SUPERCOOLING, FUSED SALT, INDIUM  
ANTIMONIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0277 STEP NO--UR/0075/70/044/003/0668/0672  
CIRC ACCESSION NO--AP0113207  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113207

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE RATE OF NUCLEATION ON THE DEGREE OF SUPERCOOLING IS DERIVED FROM A STATISTICAL INVESTIGATION OF SUPERCOOLING OF A MELT. THE RATE OF NUCLEATION OF IN ANTIMONIDE ON THE DEGREE OF SUPERCOOLING WAS MEASURED. FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

DEM'YANOV, v.

"Location of Saddle Points on Polyhedrons"

Vestn. Leningr. Un-ta [Leningrad University Herald], No 13, 1971, pp 42-48,  
(Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No  
2 V511 by the author).

Translation: A problem is studied of finding a saddle point in a concavo-convex function defined on a convex polyhedron. A method of successive approximations is suggested for solution of this problem and determination of the  $\epsilon$ -saddle points.

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USSR

UDC 577.4

DEM'YANOV, V. F.

"An Experiment on Sequential Automata"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach. (Mathematical Economic Method and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 95-103 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V258)

No abstract

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USSR

UDC 577.4

GORBATOV, V. A., DEM'YANOV, V. F.

"Frequency-Minimal Algorithm of Covering of Boolean Matrices"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach (Mathematical Economic Methods and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 48-57 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V271)

No abstract

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USSR

UDC: 517.5

DEM'YANOV, V. F. and MALOZEMOV, V. N.

"Introduction to Minimax"

Moscow, "Nauka," 1972, p 4

Translation: Minimax (the minimization of maximum error) is the principle of optimal choice of parameters.

The simplest (and historically first) linear minimax problem, that of constructing an algebraic polynomial of the closest approximation, is discussed in the first two chapters of this book.

The other four chapters develop the general theory of nonlinear minimax problems. Separately considered are discrete and continuous cases and the absence and presence of limitations on the parameters.

The basic problems are: the differentiability of the maximum function with respect to direction, the necessary minimax conditions, the sufficient conditions of the local minimax, and methods of successive approximations for finding stationary points.

The basic theoretical results are illustrated by a profusion of examples and illustrations.

The book is designed for students, undergraduate and postgraduate, of physical mathematics departments and for a large circle of science personnel

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USSR

DEM'YANOV, V. F. and MALOZEMOV, V. N., Nauka, 1972, p 4

and engineers interested in extremal problems.

Bibliography of 86 titles and 37 illustrations.

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USSR

UDC 519.3

DEM'YANOV, V. F.

"Application of the Method of Steepest Descent to the Solution of a Problem in Mathematical Programming"

Leningrad, Vestnik Leningradskogo Universiteta -- Matematika, Mekhanika, Astronomiya, No 2, Apr 71, pp 5-13

Abstract: There are several types of sequential approximation methods that may be applied to problems in nonlinear programming. The method described in the present article involves the use of the differentiability with respect to direction of a maximum function and is a generalization of the method of steepest descent.

It is required to find the  $\min_{x \in \Omega} \varphi(x)$ , where

$$\varphi(x) = \max_{1 \leq i \leq N} f_i(x); \Omega = \{x | x \in E_n, g_j(x) \leq 0, j \in \overline{1, N_1}\},$$

and functions  $f_i$  and  $g_j$  ( $i \in \overline{1, N}$ ,  $j \in \overline{1, N_1}$ ) are continuously differentiable on some open set which contains  $\Omega$ . A point  $y \in \Omega$  at which the function  $\varphi$

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USSR

DEM'YANOV, V. F., Vestnik Leningradskogo Universiteta -- Matematika, Mekhanika, Astronomiya, No 2, Apr 71, pp 5-13

attains its minimal value will be called a stationary point of  $\varphi$  on the set  $\Omega$ . The author begins by presenting two theorems which establish the necessary conditions for a minimum. Next he describes three algorithms in which the direction of steepest descent of the function  $\varphi$  to the point  $y$  on the bounded set  $M(x_1)$  for an arbitrary  $x_1 \in \Omega$  is used to construct a sequence of points  $\{x_k\} \subset \Omega$  such that if the sequence contains a finite number of points, then its right-most element will be a stationary point of  $\varphi$ , and if the sequence contains an infinite number of points, then any end point is a stationary point of  $\varphi$ .

The present article was based on an earlier work of the author's, "Finding a Minimax on a Bounded Set," Doklady Akademii Nauk SSSR, Vol 191, No 6, 1970.

2/2

USSR

UDC 519.3:62-50

DEM'YANOV, V. F. (Leningrad)

"Sufficient Conditions for a Local Minimax"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki,  
Vol 10, No 5, Sep-Oct 70, pp 1107-1115

Abstract: The article considers the problem of the minimization of a function of the form

$$\varphi(X) = \max_{i=1,2,\dots,N} f_i(X)$$

on an entire space  $E_n$  or on a bounded set of this space. Sufficient conditions are established for a local minimax of this function. A geometric interpretation is given for these conditions. Cases consid-

1/2

USSR

DEM'YANOV, V. F., Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, Vol 10, No 5, Sep-Oct 70, pp 1107-1115

ered include those of convex and nonconvex functions  $\varphi$ , continuously differentiable and bicontinuously differentiable functions  $f_i$ .

The author thanks V. N. MALOZĚMOV for discussing the article and for useful comments.

2/2

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USSR

UDC 579.8

D  
DEM'YANOV, V. F. (Leningrad State University imeni A. A. Zhdanov) Paper presented  
by Academician L. V. Kantorovich

"Finding Saddle Points on Polyhedrons"

Moscow, Doklady Akademii Nauk SSSR (Proceedings of the Academy of Sciences USSR),  
Vol 192, No 1, p 13-15

Abstract: Polyhedrons are used as a form of sets of variables with saddle points,  
and it is suggested that such a model can be extended to many other kinds of sets  
of variables. The polyhedrons are constructed as bounded sets in Euclidean space.

A doubly continuous differentiable function  $f(x, y)$  is given for the product  
of the sets. The function is convex on  $x$  and concave on  $y$ . Equations are then  
found for the directions of steepest descent for the positive value of the func-  
tion in point  $z = x$  and the negative value in the point  $z = y$ .

A series of points is constructed in the product of the sets, and it is  
shown that if the number of points is finite, the last is an  $\varepsilon$ -saddle point of  
function  $f$ ; otherwise every point is an  $\varepsilon$ -saddle point. An algorithm is given  
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USSR

DEM'YANOV, V. F., Doklady Akademii Nauk SSSR (Proceedings of the Academy of Sciences USSR), Vol 192, No 1, p 13-15

for finding a regular saddle point.

Orig. art. has 4 refs.

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USSR

UDC 533.9.08:681.3

ZHDANOV, A.I., KLIMKO, N.P., ~~DEM'YANOV, V.G.~~

"Complex Application Of Analog And Digital Computers In Investigations Of Plasma Physics"

Vestn. Khar'kov. politekhn. in-ta (Bulletin Of Khar'kov Polytechnical Institute), 1970, No 50(98), pp 57-63 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A237)

Translation: A description is presented of an analog complex assembled on the base of the MN-7 computer series. Problems investigated on such a complex are briefly described. In addition, the possibility is considered of modeling equations in partial derivatives with a combined use of a similar complex and the "Dnepr" controller. The results confirmed the possibility of an investigation of nonlinear processes in plasma which are described with the aid of equations in Euler variables. Instances of the use of such a complex are enumerated. 4 ill. 6 ref. Summary.

1/1

USSR

UDC: 627.375.421

DEM'YANOV, V. V., AKULINICHEV, I. T.

"Resonance Amplifiers Based on Tubes and Transistors"

Rezonansnyye usiliteli na lampakh i tranzistorakh (cf. English above),  
Moscow, "Energiya", 1970, 136 pp, ill. 38 k. (from RZh-Radiotekhnika,  
No 1, Jan 71, Abstract No 1D2 K)

Translation: The authors discuss optimality of resonance amplifier circuits, and consider some problems of designing band amplifiers. Examples of resonance amplifier circuits are presented. Annotation.

1/1

- 2 -

1/2 010 UNCLASSIFIED  
TITLE--DETERMINATION OF GAS MOISTURE -U-

PROCESSING DATE--13NOV70

AUTHOR--(051)-DEMYANOV, YU.A., KOMISSAROV, N.M., BAKULIN, A.I., OXHIGIN,  
V.S., RUZAVIN, YE.I.  
COUNTRY OF INFO--USSR

SOURCE--J.S.S.R. 261,740  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 74(5)  
DATE PUBLISHED--13JAN70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--SPECTROSCOPIC ANALYSIS, MOISTURE MEASUREMENT, CHEMICAL PATENT,  
GAS ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0878

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132968

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AA0132968  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAS MOISTURE IS DETD. IN A WIDE  
PRESSURE RANGE BY 1ST HEATING THE GAS IN A HERMETIC CELL BY USING SHOCK  
WAVES AND THEN DETG. THE AMT. OF OH PRIME NEGATIVE, FORMED FROM DISSOCN.  
OF H SUB2 O VAPOR, BY ABSORPTION SPECTROSCOPY.

UNCLASSIFIED

USSR

UDC: 621.383.292

DEM'YANOVA, T. A., MARKOV, V. I.

"Effect Which the Form of the Amplitude Distribution of Pulses at the Output of a Photomultiplier has on its Threshold Sensitivity"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1932-1934

Abstract: The authors investigate the amplitude distributions of single-electron pulses at the output of a photomultiplier and calculate the characteristics of pulse signal detection with regard to the most typical forms of distributions. It is found that differences in the form of the amplitude distribution lead to differences in the amplitude of the signal required for detection. Photomultipliers with exponential amplitude distribution have the poorest characteristics. Other things being equal, the sensitivity threshold is increased by no more than 16%. The actual threshold level of a photomultiplier in reception of short light bursts of low intensity should be determined with regard to multiple emission which determines single-electron distribution in the high-amplitude region.

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USSR

UDC 621.791.011

BRIDAVSKIY, M. S., ZEMZIN, V. N., PIGROVA, G. D., and ~~DEMANTSEVICH, S. V.,~~  
Leningrad

"Heat Resistance of Nickel-Base Weld Seams"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 117-123

Abstract: Data on the effect of molybdenum and tungsten on the heat resistance of nickel-base weld seams, suitable for long-time service at high temperatures, are absent in the literature, and for this reason the present investigation is devoted to determination of the optimum quantities of alloying elements from the view-point of long-time heat resistance and engineering strength of a nickel-base weld seam. Thirteen compositions, containing a varying amount of Mo (from 7 to 22%), including the compositions of IMET-10 and TsT-28 electrodes, were studied as well as compositions in which the niobium content changed from 1 to 1.7%. The welded metals were given the following designations: Kh15N60K7, Kh15N65M14W4 (TsT-28), Kh15N65M18, Kh10N65M22 (IMET-10), Kh13N50B, Kh15N70B2, Kh15NB2, MZh0, MZh2, MZh3, MZh4, MZh5, MZh8, Zh3, Zh6, and Zh8.

A nickel-base seam metal with added Mo possesses higher strength and better long-time strength than when alloyed with niobium. Optimum concn-  
1/2

USSR

BRIDAVSKIY, M. S., et al., Fizkka i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 117-123

trations of Mo in the seam metal of the Ni-Cr-Mo system with 10-15% Cr were 12-14%, which corresponds to its greatest solubility in the matrix. Cause of embrittlement and lowering of long-time strength of the seam metal alloyed with Mo is precipitation of the rich molybdenum  $\mu$ -phase; intensive formation of this phase is observed in the presence of iron and silicon and for molybdenum in amounts exceeding the limit of its solubility in the matrix. The mechanism of appearance of hot welding cracks in seams alloyed with Mo in quantities of the lowest limit of its solubility and significantly exceeding this quantity and limit were different. Five figures, 2 tables, 9 bibliographic references.

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USSR

UDC 621.791.755:669.295

DEMYANTSEVICH, V. P., Candidate of Technical Sciences, and MATYUKHIN, V. I., Engineer

"Submerged-Arc Gas-Electric Welding of Titanium Alloys With a Positive Seam Formation"

Moscow, Svarochnoye Proizvodstvo, No 9, 1973, pp 16-17

Abstract: Results of an investigation into the effect of the positive action of a cooling roller on the molten metal of a weld bath during welding by submerged arc with a nonconsumable electrode and without a filler material, on the quality of seam formation are presented. The advantage of welding titanium alloys by the above-described method was established. This method makes it possible to increase the rate of molten metal cooling and renders a favorable effect on the weld-joint structure. The effect of arc voltage, welding current, welding rate, and distance between the roller and electrode on the melting capability of the arc was also established. The design of a protective adapter has been developed which ensures effective gas protection of the molten bath and seam, quality formation of the seam without notches when welding with a nonconsumable electrode with a filler, and control of the time the metal of the bath is in the molten state. 4 figures, 1 table, 4 bibliographic references.

1/1



1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PLASTICITY AND CREEP OF SHALLOW SHELLS OF REVOLUTION -U-

AUTHOR--DEMYANUSHKO, I.V.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, MAR-APR  
1970, P. 109-120  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--PLASTICITY, SHELL OF REVOLUTION, BIBLIOGRAPHY, METAL CREEP,  
ELASCTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0353

STEP NO--UR/0434/70/000/000/0109/0120

CIRC ACCESSION NO--AP0124110

UNCLASSIFIED

2/2 019  
CIRC ACCESSION NO--AP0124110

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF INTEGRAL EQUATIONS WHICH ALLOW THE APPLICATION OF A SINGLE ALGORITHM IN THE STRENGTH ANALYSIS OF BOTH ELASTIC AND RIGID SHALLOW SHELLS OF REVOLUTION OF VARIABLE THICKNESS UNDER AXISYMMETRICAL LOADS APPLIED IN THE REGIONS OF ELASTICITY, PLASTICITY AND CREEP. A SUCCESSIVE APPROXIMATION PROCEDURE FOR SOLVING THESE EQUATIONS IS GIVEN. THE RESULTS ARE APPLIED IN AN ANALYSIS OF PLASTICITY AND CREEP IN A SHALLOW SHELL. THIS METHOD IS APPLICABLE TO CALCULATIONS OF STRESS STRAIN STATES IN PLATES, DISKS, AND BODIES OF REVOLUTION, BOTH ELASTIC AND RIGID, WITH COMPLEX LOADING HISTORIES IN THE PRESENCE OF PLASTICITY AND CREEP.

UNCLASSIFIED

USSR

UDC 547.1'28+661.718.1

ANDRIANOV, K. A., VASIL'YEVA, T. V., and DEMYKINA, T. K., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Condensation of Alkyltriethoxysilanes with Hexylphosphinic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1565-1568

Abstract: The authors studied reactions of the heterofunctional condensation of alkyltriethoxysilanes with hexylphosphinic acid and its acid dichloride. It was found that the yields of the cyclic and polymeric reaction products depend on the size of the radicals at silicon.

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USSR

UDC 681.327.12

DENBNOVETSKIY, S. V., ZABOROVSKIY, YU. A., PETRENKO, A. I., SKRYNSKIY, N. YA.

"Method of Reading Two-Dimensional Graphs"

USSR Author's Certificate No 310274, filed 12 May 69, published 3 Sep 71 (from RZh —Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A525P)

Translation: A procedure is proposed for reading two-dimensional graphs by swinging the beam in a circular trajectory. In order to increase the reliability when reading the graphs with internal and external loops, the time interval of the tracking resolution is generated in each circular scanning cycle. This interval is centered symmetrically with respect to the reading direction, and on coincidence of the middle of the time interval of the resolution with the direction of reading, the center of the circular scan of the beam is advanced along the reading direction by one step. There are 2 illustrations.

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USSR

UDC: 681.327.11

DENBNOVETSKIY, S. V., LESKIN, V. F., MEDVEDENKO, B. I., SEMENOV, G. F.,  
SIGORSKIY, V. P., TSYGANOK, B. A., PETRENKO, A. I., Kiev "Order of Lenin"  
Polytechnical Institute imeni the Fiftieth Anniversary of the Great October  
Socialist Revolution

"A Device for Mapping Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 10, Apr 72, Author's Certificate No 332455, Division G, filed 22 May 70,  
published 14 Mar 72, p 193

Translation: This Author's Certificate introduces a device for mapping  
information. The device contains a cathode ray tube with deflecting system,  
and amplifiers. As a distinguishing feature of the patent, the clarity and  
contrast of the reproduction are improved by adding a deflecting micro-  
coil placed in the throat of the CRT and connected through a shaper ampli-  
fier to the output of the video amplifier.

1/1

USSR

UDC: 621.374.32

ARTYUKHOV, V. G., DENBNOVETSKIY, S. V., and SIGORSKIY, V. P.

"Multifunctional Counting Device Using Pulse-Position, Multistable Elements"

Novosibirsk, Avtometriya, No 5, 1971, pp 57-67

Abstract: This article is partially based on an earlier article, in which the second and third above-named authors participated (S. V. Denbnovskiy, et al, Zapominayushchiye mnogofunktsional'-nyye ostsillografi (Multifunctional Memory Oscillographs) Izmeritel'naya tekhnika, No 1, 1968). The earlier article discussed the structure of multifunctional devices for performing a set of measurements; the present article discusses the basic theory of such a device using digital equipment based on the direct count of pulses. The basic element of such a multifunctional counting device is a decade counting cell fulfilling such functions as pulse counting, frequency division of signal trains, and intermediate memorization. Schematics of two such circuits are given together with various block diagrams showing combinations of such circuits for performing various functions. A final block diagram of the entire instrument is provided. Miniaturization of the equipment is also discussed.

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USSR

UDC 681.3:53.085.3

DENBNOVETSKIY, S. V., and MEDVEDENKO, B. I., Kiev Polytechnical Institute  
in the Fiftieth Anniversary of the Great October Socialist Revolution

"A Device for Reproducing and Converting Images"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 22, Aug 71, Author's Certificate No 309358, Division G, filed 6 Oct 69,  
published 9 Jul 71, p 187

Translation: This Author's Certificate introduces a device for reproducing and converting images which contains a two-beam cathode-ray memory tube with recording amplifier, recording beam deflection circuit, television readout scanning amplifier, and readout circuit. Also incorporated in the device is a television display module with video amplifier, cathode-ray display, and television scanning circuit. In addition, the installation includes a control panel and a light pen module with counter, register, master clock, and pulse shaper which are connected to a digital computer through a digital-analog converter, sign generator, and switches. As a distinguishing feature of the patent, for purposes of autonomous conversion of images reproduced on the screen of the CRT, the device includes an additional cathode-ray memory tube and commutation module with frequency

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USSR

DENBNOVETSKIY, S. V., and MEDVEDENKO, B. I., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 22, Aug 71, Author's Certificate No 309358, Division G, filed 6 Oct 69, published 9 Jul 71, p 187

divider, pulse-shaping circuit, transposition and detection pulse selectors, transposition decoder, and auxiliary television scanning circuit. The frequency divider is connected to the television scanning circuit, the transposition selector is connected through a switch to the recording amplifier, and the pulse-shaping circuit is connected to the readout circuit. The auxiliary television scanning circuit is connected to the recording beam deflection circuit. The transposition decoder and pulse-shaping circuit are connected to the control panel, the recording amplifier of the additional cathode-ray memory tube module is connected to the pulse shaper, and the recording beam deflection circuit and television scanning readout amplifier are connected to the television scanning circuit. The readout circuit of the additional cathode-ray memory tube module is connected through a switch to the pulse-shaping circuit.

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Information theory

USSR

UDC 681.327.12

DENBNOVETSKIY, S. V., ZABOROVSKIY, Yu. A., PETRENKO, A. I., SKRYNSKIY,  
N. Ya., Kiev Polytechnical Institute

"A Method of Reading out Two-Dimensional Graphs"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 23, Aug 71, Author's Certificate No 310274, Division G, filed 12 May  
69, published 26 Jul 71, p 158

Translation: This Author's Certificate introduces a device for reading  
out two-dimensional graphs by turning a beam in a circular trajectory.  
As a distinguishing feature of the patent, in order to improve reliability  
in reading out graphs with inside and outside loops, the time  
interval of tracking resolution is isolated on each cycle of the circular  
scan, this interval is symmetrically centered relative to the  
direction of readout, and the center of circular beam scanning is moved  
one step in the direction of readout when the middle of the time resolution  
interval coincides with the readout direction.

1/1

USSR

UDC 621.385.832.82:621.317.616

DENBNOVETSKIY, S. V., TISHCHENKO, F. I.

"A Cathode-Ray Memory Tube With Barrier Grid as an Electronic Circuit Element"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 151-155

Abstract: The cathode-ray memory tube with barrier grid is represented as a nonautonomous multiterminal network to which a generalized conductivity matrix  $Y$  is ascribed. The authors find the equivalent parameters of the tube which enable investigating its properties as a circuit element. Three illustrations, bibliography of three titles.

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USSR

UDC 681.142.62

DENBNOVETSKIY, S. V., MEDVEDENKO, B. I.

"Use of Cathode-Ray Memory Tubes in Systems of Graphic Interaction  
Between an Operator and a Digital Computer"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 143-151

Abstract: It is shown that cathode-ray memory tubes can be effectively used in graphic data output devices on digital computers. The use of cathode-ray memory tubes as a buffer memory eliminates losses of machine time for image regeneration, and reduces the severity of requirements for speed in the systems for formation of the image on the CRT screen. An auxiliary cathode-ray memory tube used as an immediate-access storage unit enables realization of a self-contained graphic device. Six illustrations, bibliography of four titles.

1/1

USSR

UDC 537.533.8

SEMENOV, G.F., DENENOVETSKIY, S.V.

"Approximation Of The Effective Coefficient Of Secondary Emission In A Wide Range Of Changes Of The Target Potential"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory  
(Electronic Technology. Scientific-Technical Collection. Electron Beam and Photoelectric Devices), 1970, Issue 2(16), pp 43-46 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A9)

Translation: An approximate function is proposed for the effective coefficient of secondary emission with any values of the target potential, provided that the actual coefficient of secondary emission is known. An example is presented of the use of an approximate function for determination of the potential contour of the recording of an input signal with large amplitude. Author's abstract.

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USSR

UDC 621.396.963

DENBNOVETSKIY, S. V., MEDVEDENKO, B. I., SAVCHENKO, V. A.

"Dynamic Raster Display"

USSR Author's Certificate No 253179, Filed 30 Jul 68, Published 24 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G50P)

Translation: This author's certificate introduces a dynamic raster display for displaying radar information containing a two-beam storage cathode ray tube with multiple reading, a recording beam modulator which is connected to the input unit and the recording line scanning generator via an AND gate. The output electrode is connected to the signal processing unit which is connected to the modulator of the reading beam of the storage cathode ray tube and the modulator of the kinescope. The device also contains an image erasure generator, a synchronizer and a shaper for the vertical deviation of the recording and reading beams. In order to insure step displacement of the image with line-by-line renewal of the information, counters are included between the input unit and the shaper of vertical recording beam deflections and also between the synchronizer and the shaper of vertical reading beam deflections. The signals from these counters are fed to a decoder which is connected to the inputs of the frame scanning generator of the kinescope and the image erasure generator.

1/1

USSR

SHCHELKUNOVA, S. A., ~~DENICHEV, D. D.~~ BADENKO, L. A., and SEMENOV, R. I.,  
Leningrad State University imeni A. A. Zhdanov and Physicotechnical Institute,  
Academy of Sciences USSR, Leningrad

"The Effect of Magnetic Fields on Escherichia coli K-12"

Moscow, Biofizika, Vol 15, No 4, Jul/Aug 70, pp 665-669

Abstract: Exposure of E. coli K-12 to permanent and pulsed magnetic fields (5,000 oe for 2 to 6 hours had no effect on reproduction of microorganisms. Exposure to a stronger permanent field (32,000 oe for 2 hours temporarily inhibited bacterial reproduction on meat-peptone agar, but during the next 2 hours the number of cells in the experiment was the same as in controls. Two hypotheses are advanced to account for this phenomenon: (i) some of the cells died while the surviving "magnetism-resistant" cells continued to multiply; (ii) all of the cells survived, but some of them lost their ability to divide when transferred to a solid nutrient medium. Oxygen uptake by the cells in the presence of glucose was somewhat impaired by 2 hours' exposure to magnetic fields. The effect was most pronounced after exposure to the pulsed magnetic field.

1/1

USSR

UDC 616.988.73-022.39:598.4

KAMENOV, Ye. K., NIKOLOV, Z. V., NEDELICHEVA, S. B., MATEVA-STOYEVA, Yel. V.,  
NEDELICHEVA, N. P., PASKALEVA, M. G., DENCHEV, St. I., and TURLAKOV, I. G.,  
Chair of Epidemiology, Institute for Specialization and Advanced Training of  
Physicians, Republic Antiepidemic Station, and Zoological Institute and Museum  
of the Bulgarian Academy of Sciences, Sofia, Bulgaria

"Aquatic and Swamp Birds -- Carriers of Agents of Infectious Diseases. Com-  
munication I: Ornithosis"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 437-441

Abstract: Since Bulgaria lies along one important flight route of migrant  
aquatic and swamp fowl, a serological investigation was performed on 350 wild  
birds caught along Bulgaria's Black Sea shore and Danube River. Specific anti-  
bodies against ornithosis were found in specimens belonging to the orders  
Ardiiformes, Podicipidiformes, Lariformes, Ralliformes, and Charadriiformes.  
In some areas densely populated by wild ducks, antibodies against ornithosis  
virus were found in 21.8% of wild ducks, in 44.7% of domestic ducks on neigh-  
boring farms, and in 54.5% of people. These findings support the previously  
advanced hypothesis that migrating aquatic and swamp birds play an important  
role in the epidemiology ornithosis in natural foci and in the transmission  
of this disease to domestic fowl and to humans.

1/1

DENECH, A. K.

1. TITLE	2. REPORT NO.	3. REPORT TYPE	4. PERFORMING ORGANIZATION REPORT NO.	5. PERIOD OF REPORT	6. DATE OF REPORT
DEFECTOSCOPY OF METALS	JMS 59424	3 July 1973			
7. AUTHOR	8. PERFORMING ORGANIZATION NAME AND ADDRESS	9. PERIOD OF REPORT	10. PERIOD OF REPORT	11. PERIOD OF REPORT	12. PERIOD OF REPORT
A. K. Bregal	Joint Publications Research Service 1400 North Glebe Road Arlington, Virginia 22201				
13. PERIOD OF REPORT	14. PERIOD OF REPORT	15. PERIOD OF REPORT	16. PERIOD OF REPORT	17. PERIOD OF REPORT	18. PERIOD OF REPORT
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25. PERIOD OF REPORT	26. PERIOD OF REPORT	27. PERIOD OF REPORT	28. PERIOD OF REPORT	29. PERIOD OF REPORT	30. PERIOD OF REPORT
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31. PERIOD OF REPORT	32. PERIOD OF REPORT	33. PERIOD OF REPORT	34. PERIOD OF REPORT	35. PERIOD OF REPORT	36. PERIOD OF REPORT
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37. PERIOD OF REPORT	38. PERIOD OF REPORT	39. PERIOD OF REPORT	40. PERIOD OF REPORT	41. PERIOD OF REPORT	42. PERIOD OF REPORT
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43. PERIOD OF REPORT	44. PERIOD OF REPORT	45. PERIOD OF REPORT	46. PERIOD OF REPORT	47. PERIOD OF REPORT	48. PERIOD OF REPORT
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49. PERIOD OF REPORT	50. PERIOD OF REPORT	51. PERIOD OF REPORT	52. PERIOD OF REPORT	53. PERIOD OF REPORT	54. PERIOD OF REPORT
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67. PERIOD OF REPORT	68. PERIOD OF REPORT	69. PERIOD OF REPORT	70. PERIOD OF REPORT	71. PERIOD OF REPORT	72. PERIOD OF REPORT
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73. PERIOD OF REPORT	74. PERIOD OF REPORT	75. PERIOD OF REPORT	76. PERIOD OF REPORT	77. PERIOD OF REPORT	78. PERIOD OF REPORT
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79. PERIOD OF REPORT	80. PERIOD OF REPORT	81. PERIOD OF REPORT	82. PERIOD OF REPORT	83. PERIOD OF REPORT	84. PERIOD OF REPORT
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85. PERIOD OF REPORT	86. PERIOD OF REPORT	87. PERIOD OF REPORT	88. PERIOD OF REPORT	89. PERIOD OF REPORT	90. PERIOD OF REPORT
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Analysis and Testing

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UDC 669.017:620.179

DENEL', A. K.

Defektoskopiya Metallov (Defectoscopy of Metals), Moscow, "Metallurgiya,"  
1972, 304 pp

Translation of Annotation: This book presents principles of the nondestructive testing of materials and organization of defectoscopy laboratories at industrial enterprises. Examples of planning and equipping the industrial laboratories for nondestructive testing are given along with the interpretation of the analysis results and employing of basic safety measures. Brief information is given on the main application areas of defectoscopes and of apparatus manufactured by domestic industry.

The book is intended for engineers and technicians at industrial laboratories, qualified workers, and may also be useful to industrial control personnel and students studying nondestructive testing methods.

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DENEL', A. K., Defektoskopiya Metallov, Moscow, "Metallurgiya," 1972, 304 pp

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DENEL', A. K., Defektoskopiya Metallov, Moscow, "Metallurgiya," 1972, 304 pp

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UDC [537.226+537.311.33]:[537+535]

DENENE, M. V., and REPSHAS, K. K.

"Study of the Hall Parity Effect in n-Type Germanium"

Lit. fiz. sb. (Collection of Lithuanian Works on Physics), 1971, 11, No 2, pp 239-242 (summaries in Lithuanian and English) (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE736 by authors)

Translation: The article presents experimental results of a study of the Hall quadratic effect as a function of magnetic field intensity for various current directions relative to the crystallographic (100) axis at room temperature. Experiments were conducted for the case in which the current is in the (110) plane and  $H \perp (110)$ . Measurement results are contrasted with theoretical results, calculated on the basis of the Boltzmann equation in approximation of isotropic scattering.

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DENEV, Y. D.

"Comparison of the Complexity of Various Realizations of Logical Algebra Functions by the Method of Stages"

Diskretn. Analiz [Discrete Analysis -- Collection of Works], No 20, Novosibirsk, 1972, pp 9-15 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V456, by A. Sapozhenko).

Translation: The logical algebra function  $f(x_1, \dots, x_n)$  can be realized by the method of stages in various ways. The method used is determined by the order of expansion of the function with respect to its variables. Suppose  $\bar{\alpha} = (i_1, i_2, \dots, i_n)$  is a permutation of the numbers  $1, 2, \dots, n$  yielding the order of expansion of the function  $f(x_1, \dots, x_n)$  and  $l_{\bar{\alpha}}(f)$  is the complexity of the circuit produced with this order of expansion. Suppose  $Y(f) = \max_{\bar{\alpha}} \frac{l_{\bar{\alpha}}(f)}{l_{\bar{\alpha}}(f)}$ , where the maximum is taken with respect to all pairs of permutations  $\bar{\alpha}, \bar{\beta}$  of the numbers  $1, 2, \dots, n$  and suppose  $Y(n) = \max_f Y(f)$ . Here the maximum is

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Denev, Y. D., Diskretn. Analiz, No 20, Novosibirsk, 1972, pp 9-15.

taken with respect to all functions essentially dependent on  $n$  variables. it is demonstrated that  $2^n/5n^2 \leq Y(n) \leq 4(2^n/n^2)$ . On the other hand, it is demonstrated that for almost all functions  $f(x_1, \dots, x_n)$  and arbitrary  $\epsilon > 0, 1 \leq Y(f) \leq 1 + \epsilon$ .

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- UDC 532.5:621.22

DENEYKA, V. I.

"Calculation of an Ejector for the Dilution of Sewer Waters Upon Ejection into Reservoirs"

Gidravlika i gidrotekhn. Resp. mezhved. nauch.-tekhn. sb. (Hydraulics and Hydraulic Engineering. Republic Interdepartmental Scientific-Technical Collection), 1972, No. 15, pp 43-46 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B747)

Translation: The design of an ejector is described when a method is given for its use for intensive and multiple dilution of sewer waters upon their entry into reservoirs. The basic equations for a hydraulic calculation of the ejector are derived and the results are compared with experimental data. 12 ref. Author's abstract.

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UDC 669.25'28

DENEZI, V.

"Substituting Molybdenum for Tungsten in Cobalt-Base Heat-Resistant Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 22-24

Abstract: The possibility of substituting molybdenum for tungsten in industrial cobalt-base heat-resistant alloys (Mar-M-509 and FSX-414) was experimentally determined. Properties of these alloys in short-duration tests, values of their fatigue limit and relative elongation, coefficients of thermal expansion, and densities at room temperature are presented. Alloying with molybdenum instead of tungsten does not decrease the fatigue limit and ultimate resistance of Mar-M-509 and FSX-414 alloys, but increases their plasticity in creep rupture tests and decreases their density at room temperature. Coefficients of thermal expansion, characteristics of microstructure, and crystallization of both alloys are identical. Three tables.

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DENEZI, V.

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